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South Australian Apple Users Club, Inc.

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Membership Fees

Individuals or Schools	$30.00
Corporations / Businesses	$50.00

Extended memberships available

Library Disks

Public Domain disks

Apple][(5.25")	$4.00 ea
Apple][GS (3.5")	$7.00 ea
Macintosh	$7.00 ea

Boxes of 10 blank disks

5.25" DSDD	$10.00
3.5" DSDD	$26.00
Disk Catalogues 1989	$2.00 ea

All programs supplied on club disks have been written using original Apple equipment; no guarantee is given by the club for use of programs on Apple compatible computers.

Postal rates for disks

1 to 9 disks add	$2.00
10 disks add	$3.00
Greater than 10 disks add	$4.00

The above rates include Australia Post insurance worth $50.
Please add an additional $2.50 for insurance cover worth $200.

Public domain disk purchases of $20 or more from S.A. country members (Postcodes 5200 or greater) or interstate members will be posted FREE. The additional insurance charge of $2.50 is still payable if you require the extra cover.

Meetings
Apple II meetings are held at 7.30pm on the 1st Friday of each month; Macintosh meetings are held at 7.30pm on the 3rd Friday of each month, at the rear of the Prospect Town Hall, Prospect Road, Prospect.

Contributing Articles
Articles will be accepted from anyone wishing to contribute material for publication in the newsletter, provided it is oriented towards Apple computers.
It can be of any topic relating to Apple computers, and may be typed printed normally spaced on standard A4 paper, or preferably on disk as a plain text document. Send articles to the Newsletter Editor c/- above postal address or hand to a club committee member at any meetings. All disks will be returned.

Members who contribute an article with a length of two pages or greater will receive their choice of club disk from the library on request.

Advertising
Small advertisements (quarter page or less) from financial club members will be accepted and published free of charge provided they are signed by the person(s) placing the advertisement.

Business advertising rates are by negotiation or as follows:

1/4 page	$18.00
1/2 page	$30.00
Full page	$50.00
Back cover	$70.00

All advertisements will be printed under the proviso that they do not conflict with the best interests of the Club.

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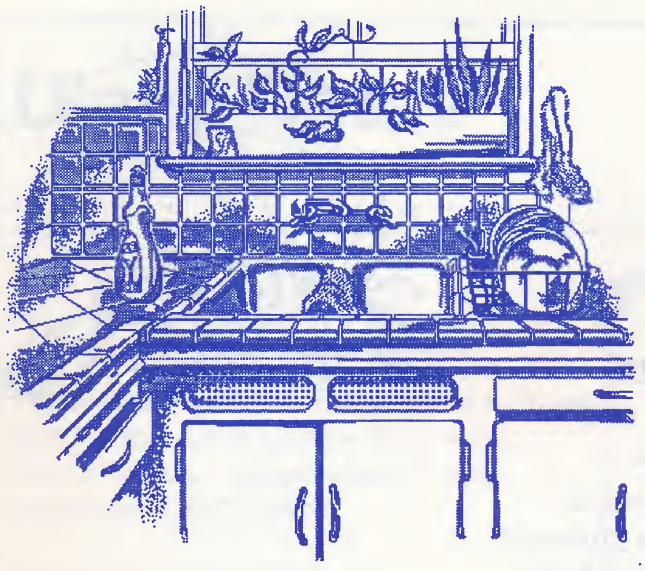

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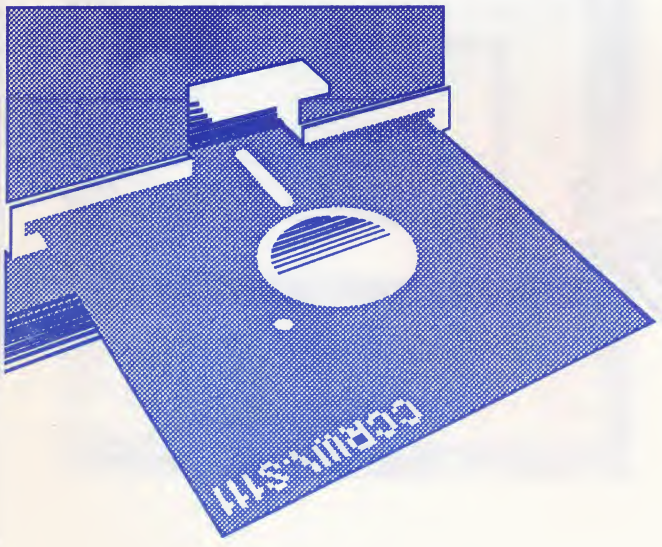
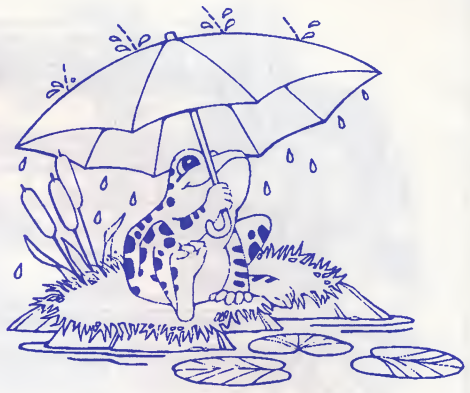


Presidential Desktop
NOVEMBER 1989



Unfortunately this month's Presidential Pen will be somewhat shorter than normal. We have lost the original and I have had to try and recall what was written.

The club ribbon inkers will be out of action for several weeks due to a recall for safety reasons. We have collected ribbons from the past two meetings. These will be inked before the unit is dispatched to the suppliers.

We have again reduced the price of 3.5" blank 800K diskettes, Sony brand at present. Why not purchase some of these as a gift for some-one or yourself for Christmas.

Don't forget, the only meeting we shall hold in December will be the combined Christmas meeting. Come along and join us for our last meeting for the year.

Last Mac meeting we covered the anti-virus program SAM. Thanks to Brenton for the very thorough presentation. The club own the program and have checked all of the public domain library to ensure we are free of the dreaded virus.

We had hoped to demo the Hewlett Packard Paint Jet printer at the last meeting. The Paint Jet was supplied, but time did not permit us to set it up to demo the performance. There is a new model of this unit due out shortly. When this becomes available we shall attempt to borrow one for a demo.

I hope that the Membership survey will be supplied to you with this issue. Please give us a little of your time, fill it out and return it to us today. The purpose of you doing this is so we can optimize our perception of your wishes for the future direction of the club. Thank you for giving us a few moments of your time.

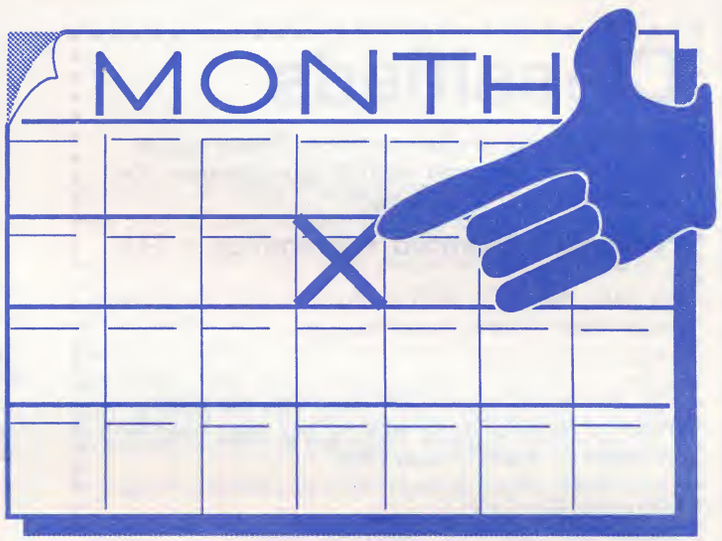
Regards

Bob Owen

Diary Dates

Next main Apple][meeting
Friday November 3 at 7.30pm –
Rear of Prospect Town Hall.

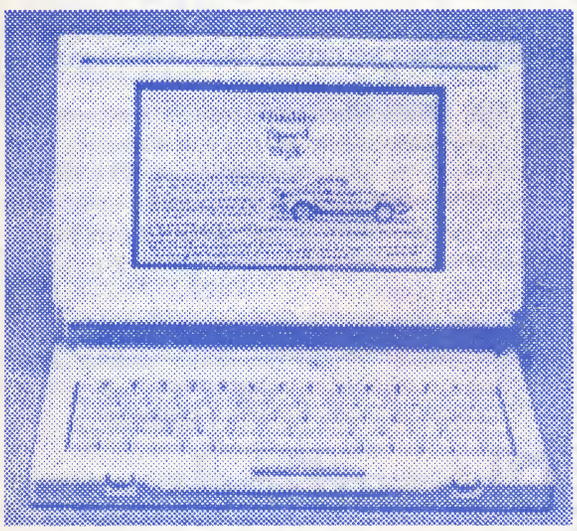
Phil Robers from PC Computers will talk about hard disks – (how they work, what's inside, characteristics, why Apple uses SCSI, etc).



Next Macintosh meeting
Friday November 17 at 7.30pm –
Rear of Prospect Town Hall.

Greg Egan from CPM&S will demonstrate the new Portable Macintosh.

This will be the last Mac meeting for the year, but don't forget the Christmas main meeting on December 1 – a light supper and drinks will be provided.



Next committee meeting
Friday November 10 – 7.30pm
at the Aiport meeting room

Magazine closing date
for the November magazine –
Friday November 17
at the Macintosh meeting

COMING EVENTS
December Club Meetings
Main meeting – December 1
This will be the last club meeting for the year – come along and enjoy an informal meeting with a light supper and drinks.
No Mac meeting in December
Next Mac meeting – January xx17

MAGAZINES
If you are holding any of the club's magazines, please return them to Michael Coleman so that others can borrow them. A $2 deposit may have to be charged for lending magazines and books from our libraries.

DISKS
10 Public domain Mac disks at $5 each
Single Mac PDS disks $7 each
Blank disks (3.5') $26.00 per box (10)
Demonstration disks $3.50 (see last issue for list of demo disks).

Classifieds

Free advertising to club members. Please supply your ads on paper and include your signature. On request ads may be repeated.

For Sale • Wanted • Exchange • Etc

For Sale: Apple]]e with 80 col card,two disk drives, green screen monitor and manuals.
$400 or near offer.

NEC Spinwriter letter qualit y printer, cut sheet feeder, a range of daisy wheels, has been used with an Apple][. $300 or near offer

Enquiries: Rae Tyler –
Phone: (08) 228 5997 (Business hours)

Apple][e enhanced , two disk drives, numeric keypad, software including Business Package.
Excellent condition. $550

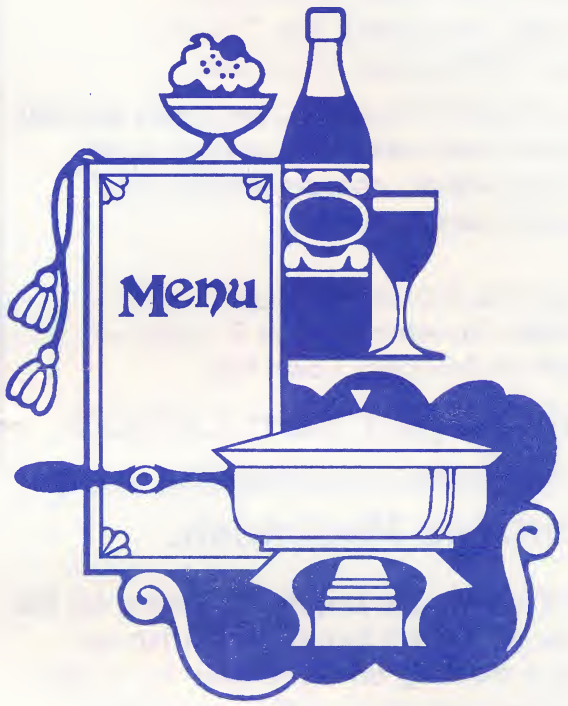
ImageWriter I printer, as new complete with all manuals and original packing. $450
Contact: Bob Owen – 293 1313

For Sale: For Sale: Mac II, 2 Meg RAM, 40Mb hard disk, mono monitor.
Contact: Peter Wade – 262 6202

Wanted I am desperately in need of two programs for the Apple][.
They are Binscii and ShrinkIt, which are used mainly for conversion of files into an Ascii form, suitable for posting onto bulletin boards.

If you have Binscii in particular, I would appreciate it if you contact me, Grant Ward, either at the user group meetings (both Apple][and Mac) or phone me on 79 2255 (You may have to leave a message for me).

The reason for my desperate need is that I have many programs (mainly for the][GS) in this form which I would like to put into the club's PD software library. Some of these programs sound very good from the reviews I have read, but I cannot comment until I have the above programs.



Help Wanted I would like to speak to anyone who has a non-Apple 24 pin printer connected to an Apple][series computer and uses it with any program which prints to it using graphic mode. Contact Grant Ward at any club meeting or phone 79 2255 (you may have to leave a message).

For Sale I have an Apple][europlus system for sale. The system consists of a 64k europlus, green screen monitor, 2 Apple disk drives, 80 column card, CP/M card, colour card with RF modulator and an Epson MX-80 printer with parallel card. There is also a large bundle of software totalling about 150 disks.
If you are interested in this system then I will consider any REASONABLE offer. Contact Grant Ward at any Apple][or Mac meeting, or phone 79 2255 (you may have to leave a message).

Classifieds

Free advertising to club members. Please supply your ads on paper and include your signature. On request ads may be repeated.

For Sale • Wanted • Exchange • Etc

BASIC.SYSTEM Changes and Bugs

Cecil Fretwell

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Through my good friend, Val Golding - founder and original editor of Call -A.P.P.L.E. - I had the privilege of working with ProDOS before it was released to the public in early 1984. One of the first things I did was disassemble BASIC.SYSTEM. Upon completion I sent a 30 page report on my discoveries to Apple Computer, Inc. Since then, when a new release of BASIC.SYSTEM comes out, I always update my listing.

System Disk 5.0 contains a new BASIC.SYSTEM file representing Version 1.3. This short article will document what bugs have been fixed by Apple Computer and, unfortunately, what new bugs have been added. You may want to stay with Version 1.2 or patch Version 1.3 using the code provided at the end of this article.

I am usually against patching Apple code; they have kept their word about inserting new code instead of jumping out to or calling patch code. Since I don't know when the bugs will be officially fixed, I make an exception to my rule this time.

If you want to use a program to determine which version is active,use the following table:

	Pre 1.3	1.3
$BBB1 (48049)	0	3
$BC7A (48250)	1	0

Apple Computer has always reserved the right to relocate code. If you are depending on free space in the old version, it was from $BB4C (47948) to $BC79 (48249). In Version 1.3, the free space is from $BD35 (48437) to $BDFF (48639).

The first bug fixed by Apple involves the CHAIN and STORE command. When the STORE command is used, the system first performs a garbage collection then copies all simple variables, array variables, and their contents up to immediately under string storage. The resulting contiguous data is then saved to disk. CHAIN uses the same process with the exception that it does not store the data to disk. After the CHAINed to program is brought into memory, the variables, etc., are moved back down to the end of the program.

This was all fine and dandy if the contiguous data did not start on a page boundary. If it did start on a page boundary, all sorts of neat things would happen - you'd lose strings, crash to the monitor, etc.

Many solutions have been presented over the years. The most reliable one is to a POKE 41859,3 immediately before the CHAIN or STORE operation then do a POKE 41859,7 immediately after the operation. The routine being patched by the POKEs is also used by the FRE and garbage collection process, so failure to remove the patch messed up this logic.

Version 1.3 BASIC.SYSTEM code does the patch and unpatch for you. The patched location of $A383 (41869) remains the same so you don't have to change programs that used the POKEs. Apple, of course, added ten bytes of code in this process so if you are banking on BASIC.SYSTEM code being in a certain spot, forget it.

An enhancement was made in the form of the MTR command. This is ye old CALL-151 to get to the monitor. It will take me a while to switch to using this simpler form after using the old method for years.

This was implemented by changing the address of a JSR in the command parsing logic. The old logic subroutine looked for a system command and returned carry set or clear. In the new subroutine logic, if the command is not MTR, control is passed to the old logic subroutine. If it is the MTR command, the sytem is forced into immediate mode before JMPing to $FF69 like CALL-151 does.

There are a couple of things that bother me about the implementation of MTR. First, JMPing to the monitor produces a "dirty" stack. By virtue of the JSR to the code, the return address is on the stack. If you do a cold start of BASIC, the stack pointer gets reset. If you do a warm start, the stack is dirty. I recommend a couple of PLA instructions in the next release of BASIC.SYSTEM.

The second thing that bothers me is invoking MTR from a program. If you have some files open, there could be problems because of the forced immediate mode. No facts, just a feeling.

The third change made was in the BSAVE logic. Under Versions 1.1 and 1.2, suppose you create a new file using BSAVE with a length of 1000. Later, you BSAVE to the file with a length of 200. The length of the file does not change on disk. Version 1.0 did not have this "problem".

This created all kinds of controversy. Ken Kashmarek and I thought it was a great feature. In numerous letters to the magazines we vigourously defended our point of view. Glen Bredon and Sandy Mossberg didn't agree with us and published numerous letters to defend their point of view; their main argument being compatibility with DOS 3.3. Both sides had good arguments so neither won the battle.

Verison 1.3 lets you have the best of both worlds. If you use the B parameter, BSAVE acts exactly like the logic in Version 1.1 or 1.2. If you don't use the B parameter, a BSAVE to an existing file will always reflect the length you specify. In the example given earlier, the length of the changed file is 200 and disk space is recovered in the process.

Unfortunately, the Version 1.3 BLOAD/BSAVE logic has a couple of serious bugs. To demonstrate one bug, use BSAVE to create a short file of known information. Then BLOAD the file using an address of $BF00 (48896). This address is the start of the system global page and represents protected memory that is supposed to be respected by properly written code. The bug does not obey the rules and proceeds to replace the contents of your file with the code starting at $BF00. (This bug is due to a branch to a wrong location. Inside of branching to an error return, the branch goes to a write operation.)

The second bug involves a missing error check after a call to change the end of file marker. If this call results in an error, the results could be the smae as for the other bug or, more likely, predictable.

In the process of fixing these problems, Apple Computer might as well fix one very minor bug that has been around for years. The V parameter from the old DOS 3.3 days is supposedly completely ignored by BASIC.SYSTEM. This is true, but you might want to make use of the value given for the V parameter. Before Version 1.3, a PEEK 48743 ($BE67) returned the wrong value, the result of the V parameter was stored in $BE68 (48744) which is the first byte of the @ parameter. A POKE 47495,60 ($B987,$3C) solves the problem. For Version 1.3, POKE 47567,60 ($B9CF,$3C) solves the problem.

The following BASIC program applies the patches covered above. Notice in Line 430, I save the patched system to MY.BASIC.SYSTEM. I have thoroughly checked my work and have had a couple of people test it, but if I were you, I would test the results of my efforts before you proceed to replace your BASIC.SYSTEM.

```
100 REM ********************************
110 REM * PROGRAM TO PATCH BASIC.SYSTEM
120 REM * VERSION 1.3 LOAD MODULE.
130 REM * BY CECIL FRETWELL
140 REM *    TECHICAL EDITOR
150 REM *    CALL -A.P.P.L.E.
160 REM ********************************
170 REM
180 PRINT CHR$(4);"BLOAD
    BASIC.SYSTEM,TSYS,A$2000"
190 IF ( PEEK (17841) = 3) AND ( PEEK (18042) =
    0) THEN 220
200 PRINT "NOT VERSION 1.3"
210 END
220 REM  FIX MTR PROBLEM
230 POKE 17832,53: POKE 17833,189
240 REM  FIX BLOAD/BSAVE BRANCH PROBLEM
250 POKE 14597,159
260 REM  FIX MISSING ERROR CHECK
270 POKE 14589,58: POKE 14590,189
280 REM  FIX V PARAMETER PROBLEM
290 POKE 17359,60
300 REM  COPY PATCH CODE
310 FOR I = 0 TO 27
320 READ J
330 POKE 8867 + I,J
340 NEXT I
350 POKE 8704,163: POKE 8705,34
360 REM CHANGE HEADER TO 1.3M
370 FOR I = 8819 TO 8834
380 J = PEEK (I)
390 POKE I - 1,J
400 NEXT I
410 POKE 8834,205
420 ONERR GOT 460
430 PRINT CHR$(4);"VERIFY MY.BASIC.SYSTEM"
440 PRINT CHR$(4);"BSAVE MY.BASIC.SYSTEM"
450 END
460 POKE 216,0:REM KILL ONERR
470 PRINT CHR$(4);"CREATE MY.BASIC.SYSTEM,TSYS"
480 GOTO 440
490 DATA 160,13,185,177,34,153,53
500 DATA 189,136,16,247,76,00,190
510 DATA 104,104,76,105,255,32
520 DATA 112,190,144,3,40,40,56,96
```

SAAUC Editors Note: At the time of printing, there is System Disk 5.0.2 out with Basic.System version 1.4 which has the BSAVE/BLOAD problem fixed and other GS Tool set problems fixed. This article does a good job of describing and modifiying 1.3 to work properly. As always, when running the program, always backup your disks as something could go wrong.

Instant Synthesizer

reprinted from GS Users assocation

Instant Synthesizer now uses the //GS Ensoniq chip as it's never been used before. And If you have your it amplified stereo you'll be amazed at the sound quality.

Instant Synthesizer comes with a nice set of voice patches, but you're not limited to these. It also lets you program your own sounds quickly and easily with its resident seven-stage envelope panel. If you have a Future Sound or MDIdeas sampler board in your GS, you can digitize, loop, and edit anything you can squeeze through a microphone - your own voice, the dog's bark, or the percussive clink of silverware on china. MIDEAS Digitizer Pro is far the best board for this job.

When you boot up Instant Synthesizer, you're greeted with a digitized picture from the front of the package and a song pack called I Sound, then the fun begins. the main screen consists of two parts divided by a piano keyboard panel. On top is the Song Machine where you load and play songs, fills, and instruments with a click of the mouse. You can also control the tempo or trigger assorted fills.

By clicking the transposition arrows at either side of the keyboard display, you can adjust the pitch up or down an octave at a time. Clicking on a note sounds whatever voice you've highlighted above.

The button of the screen contains the heart of the program. Clicking on one ot the four icons at the left - Synthesizer, Effects, Envelope, or Map - opens a work area on the right. The default is the Synthesizer Panel, which controls the volume, pitch bend, detuning, vibrato depth and speed, and vibrato attack rate. The Effects Panel allows true stereo panning and controls delays, echoes, and reverbs. You can also double an instrument here for a richer sound.

The Envelope Panel has six basic sound envelopes you can edit visually using a "rubberband" feature that redraws the sound's shape instantly. You can even do this on the fly while playing a tune in the Song Machine. After a moment's delay, you'll hear your new creation. If you think it sounds awful, click Reset to restore the original envelope.

Although Instant Synthesize can play only four instruments at a time, the Map Panel lets you split the keyboard for additional voices. For example, you could map the lower registers for an electric bass and the upper for guitar, or map a half-dozen percussion patches.

Instant Synthesizer is slick, fast, and innovative.

Could you ask for anything more?

Well, yes. It's important to realize that this program isn't a sequencer or a professional musician's tool. You can't write or save songs with it. Instant Synthesizer is limited to playing Simple Music (SMUS) files created by Electronic Arts' companion program Instant Music. Instant Synthesizer can't read standard MIDI files, so don't expect to hear your sequences play the voices you create.

Instant Synthesizer is a wonderful electronic instrument that sadly enough has only limited use. If you have either Apple's or Passport's MIDI interface, you can access an outside MIDI keyboard. Without Instant Music, though, your instrument will be limited to playing along with the Instant Synthesizer demos. You can sound the Apple's Ensoniq chip from your MIDI keyboard, but only in real time and only with one voice at a time.

The ideal program would let your stand alone keyboard use the computer like a synthesizer-in-a-box-a keyboardless synthesizer module. The problem with this concept is that people who use computers with their MIDI setup are likely to use computer-run sequencers. A synthesizer program needs sequencing and MIDI file reading to fulfill this need.

MIDI implementation within Instant Synthesizer is generally weak. The program doesn't support keyboard program (voice) changes, after touch, or velocity sensitivity. Although its menu bar lets you indicate which slot your interface uses and which MIDI parameters you need, it doesn't save this information to disk. You have to type in the information each time you reboot and re-enable MIDI with each new song you load.

Instant synthesizer comes on two disks - one with the program files and one with a nice selection of demos. The program isn't copy protected. The manual includes instructions for hard-disk installation, install the song, song pack, and instrument folders from the program disk, then create a second set of folders to store similar files from the data disk. The program obstinately refused to access the second set. I got rid of the second set of folders and added the data-disk files to the original folders transferred from the program disk with instant success.

Taken for what it is an adjunct to Instant Music - Instant Synthesizer is an excellent program that can instruct and entertain. If you're a hobbyist who owns or plans to buy Instant Music, I heartily recommend Instant Synthesizer. But if you have 10 megabytes of standard MIDI files and were hoping to hear your GS join in with your bank of synthesizers to play sequenced compositions, look elsewhere.

MAKING MUSIC wid' MIDI

Musical Apples have been commonplace for years, but until Apple announced the Apple MIDI interface at MacWorld Expo in January, the company maintained a polite distance from what appears to be something of a shotgun marriage. Until now, Apple has left it to third parties to offer MIDI cards and connectors, software and keyboards.

Now Apple has blessed the union with MIDI hardware of its own.

MIDI, or Musical Instrument Digital Interface, offers computer owners, both professional musicians and home-computer hobbyists, an industry-standard interface that allows Apple computers to communicate with MIDI-equipped keyboards, synthesizers, and drum machines. Because the standard is now accepted everywhere, all peripheral musical devices can communicate through standard 5-pin DIN-type connectors and cables. MIDI instruments adhere to a standard data structure for controlling the timbre, vibrato, duration, and other aspects of a note as well.

The MIDI connector itself is deceptively simple. It may be a card that fits into a slot in our GS's or It may also be a simple device connected to a serial port, such as Apple's own MIDI interface or Passport's MIDI Pro. The Apple product is nothing more than a box, somewhat smaller than a package of cigarettes, with an eight-pin miniconnector on one end that plugs into the Macintosh or Apple IIGS serial port. On the other end of the box are MIDI IN and MIDI OUT connectors. The interface comes with three cables and a small, nearly superfluous manual. Inside the interface is a clock chip to regulate the rate at which data flows from the computer to the instrument and back, and a simple device to isolate the two devices from one another electronically so a current surge from one cannot fry the other. This so-called opto-isolation also protects the system from ground noise.

The serial port on the IIGS and Macintosh operates at several different speeds. The MIDI-standard baud rate is 31.25K baud, which the Mac and IIGS serial ports can supply. The IIe and IIc can't handle this baud rate, however, which means that you can't use Apple's MIDI box with the IIe or IIc, even if you have proper plug adapters. The clock in the interface sets this speed. The clock requires a small amount of power that it draws from the serial port.

SOME CAVEATS

Before you rush out to purchase a MIDI interface, though, thinking it will effortlessly connect you with the world of musical synthizers, you should be aware of one or two considerations.

When you use a MIDI device with your computer, you need software for composition, sequencing, and editing music. Such software comes in a wide array of flavours and styles.

MIDI interfaces don't do anything by themselves, even if you've got the appropriate software. They also need a MIDI synthesizer - a keyboard instrument, drum machine, or expander box - with which to communicate. Furthermore, not all electronic keyboards are MIDI-compatible.

Also, be aware that MIDI devices require power; some interfaces for the Macintosh, such as the Opcode Professional Plus, must be plugged into a handy electrical outlet to supply it. Others draw their power from the serial port. Because drawing power from the trickle available to the Apple II serial port can be dangerous (especially if a device draws too much!), Apple does not publish power information on the port, although the Apple MIDI Interface does use it. So other MIDI interfaces that draw on that power may run into problems, and you should probably avoid them. Your best bet is to get Apple's own interface, if you have a GS.

THREE KINDS OF INTERFACES

I looked at three MIDI interface devices for this article. Other interfaces for the Macintosh also work with the Apple IIGS, but they all function in much the same way and do the same things as the products I discuss here. All three of these devices allow an Apple II to communicate with a Casio CZ-101 keyboard, a popular MIDI keyboard (recently replaced in the Casio product line by the HT-700), but they do have differences.

Apple Computer's MIDI Interface draws its power from the Apple IIGS or Macintosh serial port and is a simple, rugged, self-contained unit. It offers only one input channel and one output channel, however, so if you want to use more than one MIDI instrument from your computer, the instruments must have a throughput jack (also called MIDI-thru) so you can daisy-chain them. Another drawback is that the Apple MIDI Interface does not work with older (pre-GS) Apple II computers.

The Passport MIDI Interface is a card you can install in slot 2 of your IIG The card offers jacks for MIDI IN, MIDI OUT, and DRUM, in addition to IN and OUT RCA jacks for using tape sync, which- given the right software-writes a signal onto a track of a multitrack tape deck that synchronizes the other tracks.

The most undesirable aspect of this card is that it faces the front of the computer, which means the MIDI jacks face the keyboard- handy for plugging in and unplugging the cables if you don't mind the lids remaining off the computer. Unfortunately, the MIDI plugs do not fit through the holes in the back the IIGS, so unless you want to take a crowbar or can opener to the back, you must at least leave the lid loose.

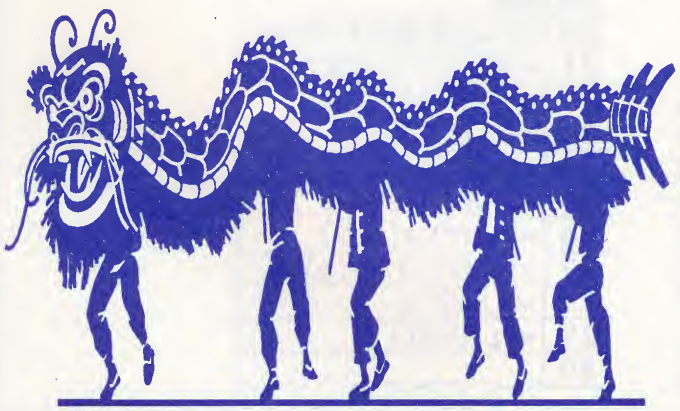
The Opcode Professional Plus Interface, which is marketed for the Macintosh, requires an external power supply and offers three output channels. Thus it can communicate with three different instruments at once, a useful feature if you have more than one MIDI instrument that does not have a throughput jack on the back. Although it is marketed for the Macintosh, the Professional Plus also works with the IIGS serial port. Opcode also makes the Studio Plus Two, which has two MIDI IN and six MIDI OUT connectors and front lights that let you know when you are sending and receiving. Other Macintosh MIDI devices also work with the GS - you should base your choice on features, such as this product's multiple output channels. Also pay attention to its power source - avoid Mac MIDI boxes that draw power from the serial port.

SOFTWARE

Software, as it becomes available, will allow you to compose, edit, and sequence music. Because MIDI is now fashionable and Apple has lent it a seal of approval with its own MIDI product, software publishers may start rushing to claim they are MIDI-compatible.

A major caveat is that some MIDI devices may not work with some software. MIDI is really a software standard, with minimal hardware requirements, but some software may not be compatible with some MIDI interfaces. Therefore, you should probably discuss the compatibility of hardware and software with your software dealer and make sure the software you want works with the interface you have.

You might consider, too, checking with music stores rather than computer dealers for MIDI software, hardware, and information. They usually know more about MIDI.



KEYBOARDS, DRUMS, EXPANDERS

Besides the computer and its software, the most important element of the home musical-hardware complex is the instrument. Several are available, from small inexpensive keyboards that you can get at discount stores to expensive professional synthesizers with enormous sound libraries and microprocessor controllers of their own.

The first things to look for in a keyboard, of course are the MIDI jacks on the back. The keyboard must have MIDI IN, MIDI OUT and possibly MIDI THRU (which allows you to add another instrument). Keyboards without MIDI are fun, but they cannot communicate with your computer.

If you want the most from a keyboard instrument, look for full-size piano keys. Many keyboards have smaller keys. The Casio HT-700, for example, is a fairly sophisticated synthesizer, but the keys are diminutive. It sounds great, but you won't improve your playing skills by using it.

Next consider whether you want so-called velocity sensitivity. The MIDI standard includes parameters for information on how hard and fast a key is depressed (as well as how long it is held and when it is released). Velocity sensitivity gives a more human feel to the music, but it doesn't cover up your mistakes the way a keyboard without velocity sensitivity does.

Another premium keyboard option just becoming available on mid-priced keyboards is pressure sensitivity or aftertouch. This feature makes the keyboard respond to additional pressure you put on the keys after the note sounds. With the right synthesizer, a pressure-sensitive keyboard can permit you to place a little extra emphasis on a sustained note or make a synthesized saxophone growl realistically.

Expander boxes are also called synthesizer modules. They are essentially synthesizers without a keyboard, and you can play them from the computer or from another keyboard instrument. They may contain a library of "presets" and may allow you to play several different timbres (instrument sounds) in various combinations with many notes in the same voice (in other words, they can play chords or sound like an orchestra).

Drum machines are synthesizers that produce various percussion sounds and rhythmic patterns.

Yamaha, Casio, Roland, and others make keyboards and other instruments ranging in price from $250 up to many thousands of dollars. The possibilities for creating interesting music through the MIDI interface are, as Apple likes to remind us, limited only by our imaginations. Even nonmusicians can have fun playing back a freeform composition through a synthesizer and stereo speakers.

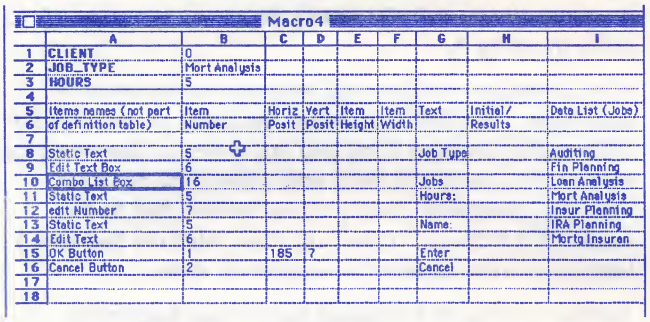
Customizing Excel.

by Ian Bagust.

Excel, as well as being a very powerful spreadsheet with graphing and data base features is also capable of being customized to a certain degree in versions 1.5 and later.

For instance commands can be added to current menus, additional menus can be added to the menu bar and a custom menu bar can be set up with your own menus. Menu bars are numbered 1 to 3, 1 the Spreadsheet menu, 2 the Graph menu and 3 the Initial menu with no document opened. As mentioned above it is possible to set up a completely new menu bar with your own menus, although the apple menu will always be available. It is also possible to set up your own dialog boxes for data input to a spreadsheet or a database.

For the purpose of this article I have written four macros. One to add a command to the "Data" menu, this



command will add a new menu with two commands, the first command to construct a dialog box for data input and put results into another part of the sheet as a data base, and the second command removes all the additions to the menu bar.

Custom Menus.

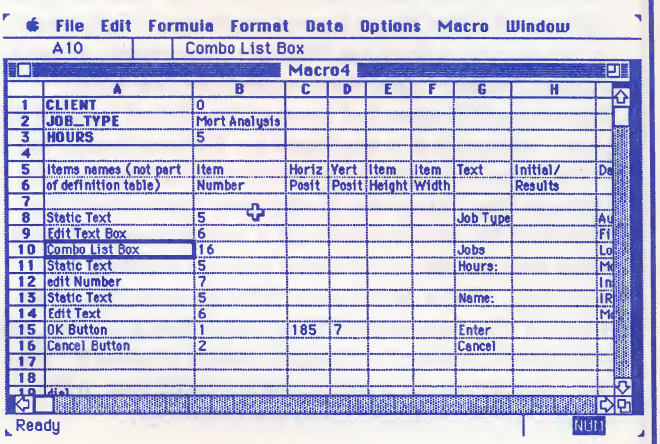
A macro is used with the following commands.

Cells A1 to A3
ADDCOM
=ADD.COMMAND(1,"DATA",A6:C6)
=RETURN()

Cells	A6	B6	C6
ADD REPORT		Macro2!REP R	

So open up a new macro sheet (Macro1) and type the above into the designated cells. When you have done this select cell A1 then DEFINE NAME from the " Format " menu, name the macro ADDCOM, click Command Macro and make A the control key. Then select RUN from the Macro menu and select Macro1!ADDCOM and check that "REPORT Cmd/A " appears as the last line of the DATA menu.

Always ensure that you have Full Menu (Vers 2.2) selected when you use these macros, also don't forget the



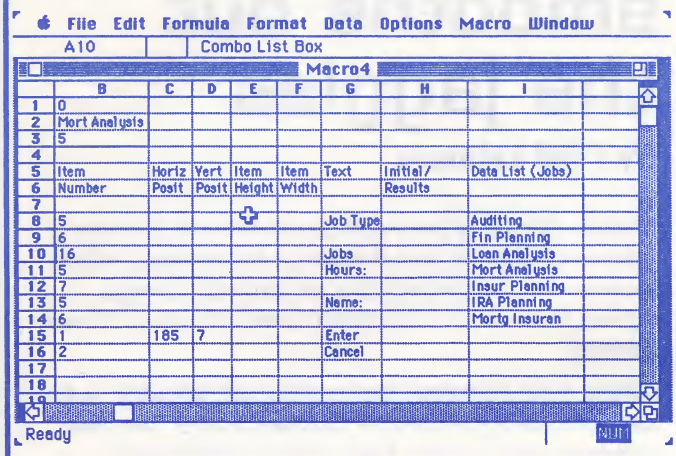
macro control key is case sensitive so you may have to select "Shift/Option/Control/A" to get it to work.

The Macro is self explanatory, Add.Command ((menu bar 1),(the name of the menu "data"), (and the Definition table A6 to C6)). The definition table can have a number of additional commands as long as it is defined as above. i.e.(The command , the macro it calls up and a control key if required.)

Next set up the "Report menu" macro which is called up by our added command in the DATA menu

Cells A1 to A4.
REP
=ADD.BAR()
=ADD.MENU(1,A6:C9)
=RETURN()

	A
19	dial
20	=DIALOG.BOX(B7:H16)
21	=SELECT("CLIENT")
22	=FORMULA(H14)
23	=SELECT("JOB_TYPE")
24	=FORMULA(H9)
25	=SELECT("HOURS")
26	=FORMULA(H12)
27	=SELECT(H7:H16)
28	=CLEAR(3)
29	=RETURN()
30	



Cells A6 to C9 (definition table)
Report
ADD DIALOG BOX Macro4!DIAL D
DELETE THIS Macro3!Exit x

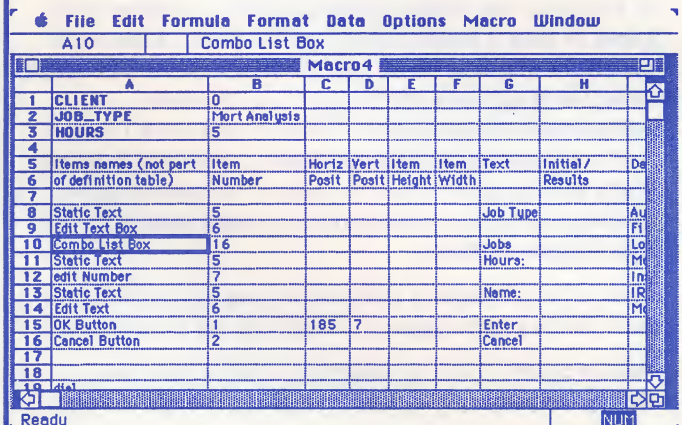
So enter the above macro (macro2), once again select A1 and define the name "REP" with command R. Now after running our add/command macro select the new command (Add Report) and a new menu "Report" should appear on the right hand end of the menu bar.

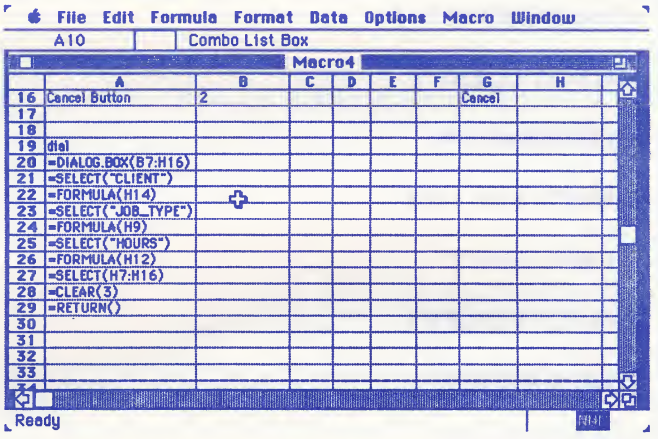
Cells A1 to A4
EXIT
=DELETE.COMMAND(1,"DATA",12)
=DELETE.MENU(1,"REPORT")
=RETURN()

Enter the remaining macro "Exit" (Macro3) and define, when you select the "Delete This" command on your Report menu the menu should disappear together with the new command you installed in the DATA menu.

Dialog Boxes.

We will now use the Report menu to call up another macro which will give us a dialog box for data input. There are two ways to do this, one is to set up a definition table using an item list. Another way is to use the Dialog Editor on the disk, make up your dialog box as you want it and then save to clipboard and transfer to a macro sheet in Excel as a definition table. The example I am giving is from the instruction manual with a few changes to permit all of it to go on the one macro sheet for convenience. You would normally set up the dialog macro on a separate sheet to the data base sheet.However to set up your own custom dialog box you will most likely need the manual as the procedure can be fairly complex.





The data for the dialog box command is shown in fig 1. and I will explain it as we go.

Cells A1 to B3 are our database so type in the text and define cells B1 to B3 with the names in A1 to A3. This is where our input data will finally appear.

Cells A5 to I6 , and A8 to A16 are not really part of the definition table but merely to indicate the contents of each column and row so you can leave them out if you wish.(i.e. Remarks only).

Cells B7 to H16 are our definition table and should be entered as shown.

Cells I8 to I14 are data cells and must be selected and name defined as "jobs".

Finally cells A19 to A27 contain our macro defined by selecting cell A19 and name defined as "dial".

Column B lists the various items by their numbers, Columns C through F specify the size and position of both the items within the dialog box and the dialog box itself.(e.g the OK button has been moved across to the second as shown). Column G the sixth column specifies text for certain dialog box items. The seventh column specifies the values displayed in the dialog box when it

is opened, and holds the values entered in the dialog box after it is closed with an OK button.

Values can be entered in this dialog box as you would enter values in any dialog box - by typing and clicking. If you enter the values and then close the box by clicking ENTER, the values you entered and the choices you made will be returned to the dialog definition table. This information will appear in column H in our example and will be transferred by our macro to columns B1 to B3 on our sheet.

Cells A19 to A27
dial

=DIALOG.BOX(B7:1)

=SELECT("CLIENT")

=FORMULA(H14)

=SELECT("JOB_TYPE")

=FORMULA(H9)

=SELECT("HOURS")

=FORMULA(H12)

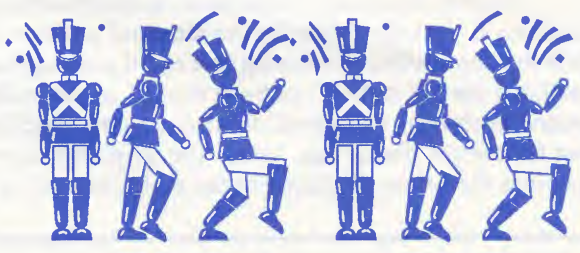
=SELECT(H7:H16)

=CLEAR(3)

=RETURN()

The above macro is fairly simple it firstly calls up the dialog box giving the references for the definition table, after that we are selecting "Client ' (B1) and transferring the data from H14 which is the name that we entered, we then go on to transfer the job type and hours as well. After that we select and clear cells H7 to H16 so that when the dialog box comes up again the input boxes will be blank.

That is all there is to it. Version 2.2 of Excel does have a boiler plate type input box available for input to the data base but to really customize your input you need to construct you own dialog box.



Adobe's ATM smooths out the jaggies

By Cliff Lehman

Boston - Breaking the tradition of allowing its fonts to work only with its own PostScript interpreters, Adobe Systems Inc. demonstrated a package that brings outline fonts to the Macintosh screen and QuickDraw printers.

Adobe Type Manager, first announced last May, is to be available by the end of October at $99. The new software goes into the Mac's System folder and intercepts QuickDraw calls for bit-map fonts, producing tuned bit maps rendered on the fly form font outlines.

ATM will include 13 fonts in the Times, Helvetica, Courier and Symbol typefaces. A separate package of 22 fonts will be available for $198 through the end of 1989. All Adobe typefaces will automatically work with ATM when it is installed in the Macintosh's system.

"Because ATM works in System 6.0. it ensures that people get quality outline fonts on the screen as well as in QuickDraw output without waiting for System 7.0," said Charles Geschke, Adobe president and CEO.

(Apple is developing a rival out-line-font technology for screen and output to be released in 1990 as part of System 7.0.)

"Adobe has thrown down the gauntlet with ATM. The technology looks good and is going to be on the market long before Apple's font technology looks good and is going to be in the market long before Apple's font technology in System 7.0," said Jonathan Seybold, publisher on The Seybold Report on Desktop Publishing in Malibu Calif. "If Apple technology is not significantly better than Adobe (technology), users are better off with (ATM)," he said.

In the past, Macintosh screen versions of Adobe fonts came in only a handful of tuned bit maps. If the user called for text in a point size for which there was no bit map, the result was often jagged and at times unreadable representation. Printing on Quick Draw printers presented similar problems. ATM can tune bit maps for any point size, resulting in smooth, legible characters both on screen and in output produced by QuickDraw printers.

Each ATM package is licensed for use on our CPU for both display and output in PostScript an QuickDraw.

Adobe Systems Inc. is located in 1585 Charleston Road, MountainView, Calif. 94039; (415) 961-4400.

MacWeek

Smart Art 2, brings easy pizzazz to desktop publishing

By Cliff Lehman

Menlo Park, Calif - Two recent additions to Emerald City Software's line of PostScript special-effects packages promise casual desktop publishers an easy way to add flair to text and graphics.

- Smart Art 11 contains 15 effects including a spiral, a pyramid and a star burst.
- Smart Art 111 contains 15 headline design formats such as drop caps. double border and neon.

The price is $149.95, the same as the original Smart Art package.

Billed as "intelligent art," the Emerald City programs work by reading the standard PostScript code generated by an output device like a LaserWriter, then modifying it with pre-defined special effects. Parameters such as size, weight and fill controlled by the user with slide bars and buttons and by entering numbers in dialog boxes.

The art is stored as an EPS (Encapsulated PostScript) file that can be imported into Mac programs such as Microsoft Word, File Maker II, PowerPoint and MORE II.

Emerald City Software is located at 1040 Marsh Road, Suite 110, Menlo Park, Calif. 94025; (415) 324-8080.

"Clean mice are happy mice"

Upgrading a Mac II may be a better investment than buying a IIcx

Welcome to my first column in MacWEEK. What I'll be doing here is revealing Apple's complete product plans and strategies for the next three years.

Just kidding! I wanted to see if I could include any heart attacks back at Apple.

What I'll really be doing is answering your questions and commenting on technical subjects. If you send lots of questions, I won't have to resort to commentary. So write, OK?

Let's get the first question out of the way:

What did he say? What exactly did you say on CompuServe that got you fired from Apple?

Hey, I'll never tell. You think I want to take on the Apple corporate lawyers? I'd sooner sniff prussic acid. Next question.

Is 68020 + 68851 > 68030?

Since the advent of the 68030- based Macinstoshes, many users have been concerned with their 68020-based Mac IIs. The introduction of the Mac IIcx was followed by a dramatic drop in used Mac II prices, and the downward trend continues today.

Now is a really great time to pick up a Mac, cheap.

What most people don't realise is that the, Macintosh II can inexpensively be upgraded to compete with 68030-based Macs. The 68851 PMMU Paged-Memory Management Unit), available as an add-in chip for the Mac II, is a functional superset of the PMMU built into the 68030. The 68030 represents a packaging advantage over the 68020/68851 combination, not a technical advantage over the 68020 and 68851 in a single chip, which is both cheaper and smaller than two chips.

You can be sure that any operating system that turns on a 68030-based Mac will also run on a Mac II with a 68851 installed.

So what, if any, are the technical advantages of the 68030? Well, in addition to a 256-byte instruction

POSTSCRIPT NEWS FROM THE NET

Subject: Re: Postscript font sample files (do they exist)
Date: 6 Oct 89 03:30:28 GMT

In article <15066@netnews.upenn.edu>
jeff@eniac.seas.upenn.edu
(Jeffrey M White) writes:
> are PD files available which when printed out on a Postscript
> laserprinter, will give you a real sample of that font ... [in]
> a couple of different sizes, with bold, italic, outline, etc.
> I would like to be able to matchup a font [to an existing form]
> it may be difficult to provide a font sample document without actually
> providing the font itself

Since PostScript fonts are either outlines or stroke patterns, they are inherently scalable. A "sample" of all the characters in a font would in fact be the font itself.
However, it would not be particularly difficult to provide sample fonts containing, for example, only a few characters. This would allow you to see what it looked like at various sizes, without giving away the farm.
I don't know whether any font suppliers are actually doing this.

Subject: Looking for a fonts
Date: 7 Oct 89 13:54:21 GMT

I'm looking for a Postscript version of the font "Garamond 3". Not the plain "Garamond", nor the "ITC Garamond" varities, but "Garamond 3". Clues or pointers, anyone?
Robert Claeson E-mail: rclaeson@erbe.se
ERBE DATA AB

Path: Subject: Re: Postscript font sample files (d
Date: 8 Oct 89 16:49:25 GMT

>Since PostScript fonts are either outlines or stroke patterns, they are >inherently scalable. A "sample" of all the characters in a font would in >fact be the font itself.

Postscript fonts may also be bitmaps, which are scalable but look ugly if scaled. They could distribute fonts at, say, 13.3 point which few would want to copy.
DougMcDonald

Subject: GIF --> postscript sought!
Date: 9 Oct 89 00:18:25 GMT

I am looking for a GIF to postscript translator. If such a beast exists, what limitations on the types of GIF pictures (ie, colors, resolution, etc.) should I expect.
Please email responses. Thanks in advance!
Mark.

Mark J. Bailey "Ya'll com bak naw, ya hear!"
USMAIL: 511 Memorial Blvd., Murfreesboro, TN 37129

Subject: Re: Exploring PostScript's dictionaries
Date: 9 Oct 89 14:36:59 GMT

Last Thursday, when I switched form an Apple Laserwriter to an Agfa P3400PS Laserprinter I encountered some problems with my program "systemdict.ps" that I posted a few days ago.

1. The statusdict-integer waittimeout was too small (30): The printer ended with an error-message "timeout".
To solve this problem I added some lines to my program that increase this timeout during the job to 120.

2. When the program encountered a "no access" string, i.e.:
FontDirectory (dict,r--)
. Courier (dict,r--)
. . CharData (string,---)
the printerjob ended with:
%%[Error: invalidaccess; OffendingCommand: length]%%

The printer was right about that (isn't he always?): it is illegal to read a string that has *no* access at all !
This problem was solved by adding a few lines that first check the keyword to see if it has read-access.

The end of this file is the diff(1) output of the changes I made to systemdict.ps .

One other problem

There is one known problem that I wasn't able to solve right now: The printer might stop the job with an error that looks something like:
%%[Fatal system error....]%%
I think that is because the printer's memory is full. This might be so for instance when you use permanently downloaded fonts from TeX (or LaTeX).
Switching the printer off and on again might solve this problem, BUT then all of your donwloaded stuff is also gone !

If you still find any bugs after you have updated systemdict.ps please let me know.
Jos.
the rest of the file is diff(1) output for the systemdict.ps update.

```
77c77
< /LocalDict 27 dict def
---
> /LocalDict 28 dict def
105a106
>   /wto                    27 def
186,188c187,191
<     { DictName cvx exec Keyword get } stopped
<     { ( = \(\?\)) show }
<     { ( = ) show shw } ifelse
---
>     OperandType (stringtype) eq {
>       DictName cvx exec Keyword get rcheck
>       { ( = ) show DictName cvx exec Keyword get shw } if
>     }
>     { ( = ) show DictName cvx exec Keyword get shw } ifelse
```

```
260a264,268
> statusdict begin
>   defaulttimeouts /wto exch def pop pop
>   /waittimeout 120 def
> end
>
276a285,287
> statusdict begin
>   /waittimeout wto def
> end
279a291,292
>
>
```

Subject: Re: Looking for a CalComp->Postscript converter
Date: 9 Oct 89 01:52:02 GMT

In message <50@me.chalmers.se>, tobbe@me.chalmers.se (Mu!) writes:
>
> [...] PD CalComp to > PostScript converter?

From volume one of comp.sources.misc:

8710/14 ccps - CalComp-to-PostScript library (4.3 BSD)
Yours, etc., Tony Olekshy (...!alberta!oha!tony or tony@oha.UUCP).

Subject: PostScript Benchmarks
Date: 9 Oct 89 19:20:41 GMT

I would like to obtain or create a reasonable set of PostScript pages for benchmarking output performance. It seems to me that the items on the page to vary would be number of curves, number of different fonts, number of resident vs. non-resident fonts, image size and format (binary vs. hex). Any observations or suggestions you can offer on this subject would be most welcome.
Rob

Subject: Spooling LaserWriter output on a TOPS network
Date: 10 Oct 89 00:23:27 GMT

We have a small (4 Mac's, one PC clone, one LaserWriter) TOPS network, originally installed to give the PC printer access but now used for some file sharing and backup also.

We recently purchased two Sun Sparcstations. TOPS is available for these, but what we'd like to do is use a Sun to spool LaserWriter output. We can do this for PC's connected to the Sun via Ethernet, but what about the Mac's? I called TOPS, they said a future version will support this but it's not available now. Does anyone know of a product or combination of products to provide this function?

Please reply to me and I will summarize for the net if appropriate. Thanks.

Subject: Test for nocurrentpoint
Date: 10 Oct 89 10:48:34 GMT

How can I test if there is no currentpoint, or the current path is empty? I would like something like this:

```
thereisacurrentpoint { pathbbox ..... }
                     { .....        } ifelse
```

Erik

Erik Jacobsen, Computer Science Dept, Aarhus University

Path: augean!hugin!mimir!munnari.oz.au!uunet!timer1!fritz
Subject: every fourth output missing
Date: 6 Oct 89 15:45:33 GMT

I have several postscript files which are roughly 80000 bytes long. When I send them through a spooler, every fourth file is non-existent, no page or anything.
When I send 13 of these, I get 1,2,3,5,6,7,9,10,11,13 printed.
If I shorten these files to 2500 bytes, I will get 1,2,3,8,9,10,14,15,16

I SUSPECT that an error occurs every fourth file and that the printer, an NEC LC-890, dumps its buffer and reads until an EOF. For large files, the printer will dump its buffer and read to the end of the fourth file. For small files, (a few might be in the printer) the printer will dump its buffer and read to EOF of the next file waiting.
In either case, after the printer starts printing again, the cycle repeats itself. If I change the order of the printouts, the same cycles are repeated.
This means that the unprinted files are actually printable.
Virtual memory usage in the printed files is at around 106000 of 240000.
Save nesting is 2. No dictionaries are out of bounds. stacks are not out of bounds. xon/xoff appears to be working properly.
If anyone has any advice, I would appreciate hearing from you.

Thank You,
fritz concannon
Rightime Econometrics, Inc.
Disclaimer: Nothing I say can be construed as opinions of management

Subject: Re: Test for nocurrentpoint
Date: 10 Oct 89 13:11:42 GMT

In article <3439@daimi.dk> I write:
>How can I test if there is no currentpoint, or the current path
>is empty? I would like something like this:
>
```
>       thereisacurrentpoint { pathbbox ..... }
>                            { .....        } ifelse
```

The answer: To test if pathbbox executes with an error, you can do this:

```
{pathbbox} stopped { ActionIfError } { ActionIfOk }
```

ifelse

Thanks to jlk@daimi.dk
Erik

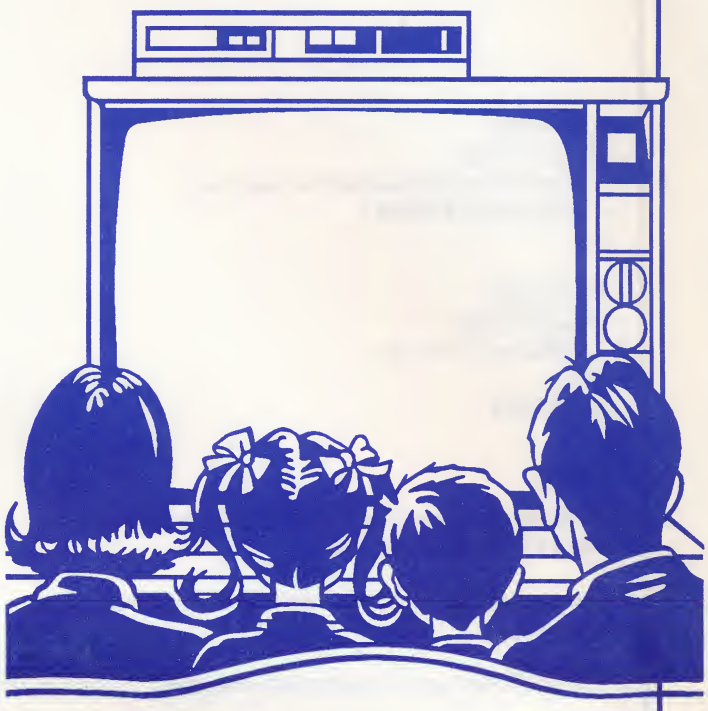
Subject: ps2eexec BUG fixed (sorry)
Date: 10 Oct 89 14:01:11 GMT

I posted a quickie program to convert postscript to eexec format two weeks ago. Unfortunately I mixed up the versions and included an old and incorrect version. Sorry for that. (I always say programs are either trivial or incorrect, but mine was both..) So here is the (hopefully) correct version:

---------- cut here ----------

```
/* Quickie to convert postscript from stdin to eexec format on stdout */
/* Written by Carsten Wiethoff 1989 */
/* You may do with it what you want as long as this notice stays in it */

#include <stdio.h>

static unsigned short buffer = 0xd971;
static unsigned long startup = 0x00000000; /* or whatever you want */

main()
{
  unsigned char input;
  unsigned char output;
  int init = 4;
  int i;

  printf("%08x",startup);
  for (i=0;i<init;++i)
    {
      input = (startup >> ((3-i)*8));
      buffer = (input + buffer) * 0xce6d + 0x58bf;
    }

  for(;;)
    {
      for (i=0;i<(32-init);++i)
          {
            input = getchar();
            if (input == EOF)
              break;
            output = (input ^ (buffer>>8));
            buffer = (output + buffer) * 0xce6d + 0x58bf;
            printf("%02x",output);
          }
      init = 0;
      printf("\n");
      if (input == EOF)
          break;
    }
}
```

Carsten Wiethoff



"Yes, these are computer pictures, now STAND STILL!"

Continued from Page 15

Upgrading your Mac II

cache, which the 68020 it also possesses, it has a 256-byte data cache. This additional cache makes no noticeable difference in current Macs. Macs based on the 68030 are also slightly faster that Mac IIs because of the elimination of one "wait state". The Mac II has two wait states; the IIx, IIcx and SE/30 have only one wait state.

Wait states are pauses inserted during any RAM access that allow the computer to use lower, cheaper memory chips. With the Mac II, one wait state is for slow memory, and the other is for the PMMU, since accessing memory through a separate PMMU takes extra time. This delay takes place even if you don't have the PMMU installed.

Using the memory faster than the standard 120 nanoseconds will not make your Mac II run any faster because the wait states for mother-board RAM are built into the current design of the computer and can't be changed.

Since the 68030 has the PMMU built into the chip, it can eliminate one wait state. This is the reason for the 15 per cent difference in speed between 68020-based Macs and 68030-based machines. Most people won't notice such a minor performance improvement, and it's not worth the cost of upgrading to a 68030-based machine.

Ramsey's recommended upgrades. You can add a PMMU to a Mac II for about $400 and FDHD (floppy drive high-density, colloquially known as SuperDrive) for $559. Unless you're running A/UX or Connectix's Virtual, adding a PMMU now will do nothing for your system.

I recommend waiting until System 7.0 comes out before you purchase a PMMU, unless you stumble across one for a great price.

The Super Drive is good for backups, since it can store 1.4 Mbytes on a single high-density disk. It also allows you to read and write DOS disks using Dayna's DOS Mounter or Apple File Exchange.

If you want to have more speed, check out our Orchid's $299 MacSprint cache card (see MacWEEK review, April 25). The device plugs into your 68020 socket and caches motherboard memory into 32 Kbytes of very fast RAM, which reduces your MacII's average memory access times to well under one wait state. A Macintosh II with this device is faster than a Macintosh IIx.

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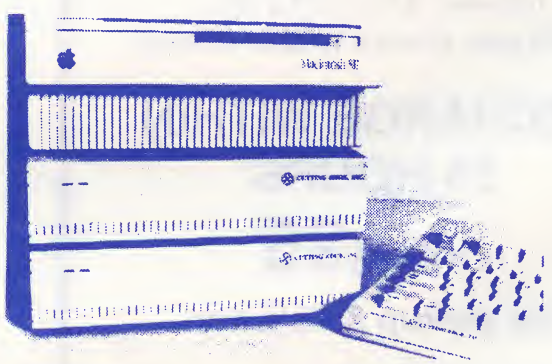

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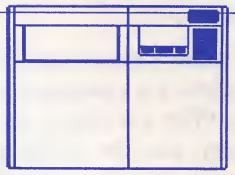

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